



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

DECEMBER 3RD, 1867.

DR. CHARNOCK, V.P., IN THE CHAIR.

THE minutes of the previous meeting were read and confirmed.

The members elected since the last meeting were announced as under:—

Fellows.—J. R. Spencer, Esq., Oxford; Edward Jackson Riccard, Esq., M.D., Mauritius; John Cuthbert, Esq., Belmore House, Winchmore Hill, N.

Local Secretary.—Dr. M. H. Henry, surgeon, was elected a local secretary for New York.

The presents received were as follows:—

FOR THE LIBRARY.

From JAMES GOWANS, Esq.—Sketch of the New Anatomy and Physiology of the Brain and Nervous System.

From the AUTHOR—A Visit to the Kibalen Village of Sano Bay, Formosa; Dr. C. Collingwood.

From the AUTHOR—Die Wanderung der Amerikanischen Völker aus dem Norden; Professor Buschmann.

From the INSTITUTE—Journal of the United Service Institute.

From the ACADEMY—Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften, 1866 and 1867.

From the INSTITUTE—Giornale de Scienze Naturali di Palermo, vol. iii.

From the EDITORS—Medical Press and Circular and the Farmers' Journal.

FOR THE MUSEUM.

From Dr. KOPERMIKI—A Rumanyo or Wallachian Skull of Transylvania.

From Dr. EDWIN CANTON—Five Chinese skulls.

Dr. HUNT, referring to the five Chinese skulls presented to the Society by Dr. Canton, which were on the table, observed that they were very peculiar, as being very different in their respective characters, considering they were stated to be the skulls of individuals of the same nation. He announced that the exhibition of the very interesting collection of stone implements was now to be seen daily by Fellows of the Society and their friends, and that Mr. Rose kindly undertook to explain them. He also announced that the Council had that day passed a vote of condolence to Madame Bopp on the death of her husband.

The following paper was then read by Mr. Walter C. Dendy:—

The Anatomy of Intellect. By WALTER C. DENDY, F.A.S.L.

THE science of mind has become almost as much a party question as the polity of the nation, and has, unhappily, fostered that partial

spirit of debate that renders it often more a struggle for victory than a contest for truth. The mystery that yet envelopes the subject lies, I believe, in the conflicting opinions that have been expressed regarding the elements of the *intellectual* and the *immortal*. Aristotle and Thales affirmed $\Psi\upsilon\chi\eta$ to be "the source of the intuitive, the sentient, the cogitative, and the motor forces;" the saints, Chrysostom, Augustin, Cyprian, Ambrose, Eusebius, believed that the soul was thus manifested through the body; and it is the prevalent belief both of theologians and of laymen that in the words of Morel, "the soul existed before consciousness." Then it was the creed of the ancient heathens that one common mind—*Anima Mundi*—pervaded the universe, the great spirit of the Hindu and the Red Indian, and the mental element is affirmed by Pritchard and Lyell and Laycock as "dominant over matter," or, in the words of Aristotle, "The mind hath that commandment over the body as the Lord over a bondsman."

From this introfusion of $\Psi\upsilon\chi\eta$ and *vous* has arisen that metaphysical tone of psychology which, notwithstanding the learned lucubrations of philosophy and spiritualism, has left the real science of mind yet in abeyance. The accomplished essays of Stewart and Hamilton and Mill are loaded with abstract speculation, and the more scientific researches of Laycock and Maudsley, although bearing in high relief the semblance of truth, may be regarded rather as beautiful and elaborate essays than as real expositions of mental science. Now, it may be very easy for us to cut the gordian knot of this solemn question, to argue that soul is mind in its ethereal and unfettered state, and mind is soul in combination with matter. It may be so; but this *petitio principii* would at once freeze up discussion, and cannot satisfy the scientific student who draws an inference from demonstration, and who is unwilling to let so vital a subject thus go by default. It is, therefore, the legitimate province of the Anthropological Society to grapple with this dilemma, by illustrations of the nervous system in the broad clear light of pure physiology—the Anatomy of Intellect. Even the first step, however, may be a delicate one. There are points of very deep import on which learned fellows, all equally conscientious, are point blank at issue, Divine creation and autogenesis, germinal evolution and spontaneous development, predestination and free will, the dominion of mind over matter, and innate organic action being fairly set in array against each other. These disputations I will not presume to reconcile. I will rest content *in limine* with claiming the credence of the Society in one simple axiom:—matter, ere it can act, must be specially endowed with the faculty and force of action. To the mysterious source of this endowment I desire to waive the slightest allusion; they who drag theology into scientific discussion, are far more irreverent than those who deem it a subject too sacred to be submitted to the test of philosophic speculation.

The doctrine of mind seems to have been to some very learned beings a mighty awful thing. The Queen's counsel, Warren, shrinks back in despair as he doles out this rhapsody—"What is intellect? In merely asking the question, we seem suddenly sliding into a sort of abyss." Then there is the most erudite spinster, dazzled by her self-

creating law, and, perchance, by the brilliant illusions of metaphysic dreamers from Berkley to Coleridge, and ignoring the demonstrations of physiology, bewailing that "we are hopelessly adrift on the sea of conjecture about the truth of mental science." Even the classic Grote becomes pathetic regarding our hopeless perplexity. It was confessed in this room that, "of the mind and soul we know nothing," and then came this startling question—"Is there a mind at all?"

With conscious diffidence, I think we ought not to be silenced by the facetious quibble—"What is mind? No matter. What is matter? Never mind." To science it is a matter of great moment, and whether mind be an entity or be it not, there is a halo of wonderful phenomena floating within us, for which it is essential that we adopt "a local habitation and a name." The old ethereal word "psychology" is yet in high fashion, and it may be fairly retained by the theologian as the revelation of soul or spirit, while I may presume to propose the term "Noosology" as the exponent of the science of intellect. Regarding the presence chamber of the soul or mind, the crotchets of the ancients were whimsical enough—Empedocles fixed on the blood, Chrysippus and Diogenes on the heart, Van Helmont on the *pylorus*, Galen adopted the brain, Lancisi selecting the *corpus callosum*, Sömmerring the *ventricular* fluid, Descartes the *pineal* gland, and so on. It was Albrecht Bishop of Regensburg who, I believe, had the first glimpse of organic phrenology; and Gall and Spurzheim enfranchised the brain, and in their distribution of seats projected that fascinating scheme of craniology that has, I fear, led many a doting proselyte astray from the true study of encephalic organism. Fully appreciating the early researches of Gall and the lucid demonstrations of Spurzheim, I may yet differ from them *tota cœlo* regarding their fanciful allotment, and for these reasons. Among the darker passions of our nature, there are two which constitute the sources of the deadliest crimes that stain the pages of the *Newgate Calendar*—destructiveness and amateness—and their organs are very broadly pencilled out for us on the cranial map, yet the cases of fallacy are innumerable. I remember, for one instance, the body of Thurtell being brought into Bartholomew's, and the peculiar depression of the temporal region was evident to all. As a rule, the skulls of young girls are beautifully smooth and rounded; there is no cranial boss to indicate an organ of destructiveness beneath, yet infanticide has become the fashion in the circles of servant-girlism. The analogy of the tiger and the man is a mere conceit. With the *feræ* there is an instinctive and vital necessity for killing,—hunger; not so with man, he has either some deep illusion, or some malignant motive for the crime of murder. Then, as to the amative organ: regard the animal under the excitement of the œstrum, the frenzy of the buck at rutting time, the rage of the tiny sparrow in the pairing season, merely because their testes are swollen to five times their normal size when sexuality is passive; or take the negative, the castrato in whom desire is destroyed; the intromittent organ is still perfect, but that of amateness is cut away, leaving the eunuch passive even in the chambers of the harem, looking, indeed, with loathing on the odalisques. Then, regarding lesion,

it may be that the cerebral hemispheres are vicarious, yet their endurance of very severe mutilation is not favourable to craniology. I cite two cases. One patient was Dr. Conolly's. St. John Long's lotion had destroyed the left parietal bone and hemisphere, leaving "an awful yawning chasm." Yet the man lived on for months, retaining all his mental faculties perfect, and his ideas most clear even within a few hours of his death. The other patient was my own: he fell on a pier of Waterloo Bridge and then into the river, skull cracked and drowned. After resuscitation I trephined the bone, and removed a basin full of brain: the mental faculties, although faint and feeble, being existent for many days, until hæmorrhage suddenly proved fatal. With due honour to the Belvedere Apollo it may be stated that the high frontal development, although commonly indicative of lofty intellect, is not, from varied extent of bone and diplœe and sinus, *diagnostic*: even the front of Jove himself may grace many a graceless fellow. There is on the contrary many a lofty mind working magnificently within a deformed skull. True, the heads of Dante, Cervantes, Shakspeare, Humboldt. Cuvier, Byron, were graced with lofty fronts, but those of Cicero and Bichat were misshapen, and that of Curran and many other illustrious men were most unpromising: that of Scott was almost pyramidal.

I believe, therefore, it matters little *how* the brain be packed, whether within a quadrant or a triangle, the scope of intellect depending more on its *quality*, its firmness, comparative weight, and the complexity of its convolutions and their secondary gyri, than on mere cranial outline or comparative size, or heaven help the shelving forehead. The brain of Cuvier weighed more than four pounds, that of Dupuytren five; that of the idiot ranges from one to two, the average being about three, *i.e.* fifty ounces in the male and forty-five ounces in the female. It may be stated that the brain of the Caucasian yields to that of the Mongol in size though not in comparative weight. Even the mincopies of the Andamans, the lowest human beings in the scale of intellect, often display cranial proportions that would not disgrace the Caucasian. The convolutions of the brain of Gauss, the great mathematician, were so complex as not to be demonstrated. There must, however, be plenty of good brain in some shape or other, or we may have the low intellectual type of the Aztec or the Bosjesman, whose numeration ends at three, or that of Pinel's lamb-headed girl, who went about bleating plaintively with an occasional "ba" by way of symphony. Yet the hemispheric ganglion is not an "ignorant mucleage," as Buffon very rudely terms it: it has been demonstrated by Gratiolet, Huxley, and others, as a tissue of beautiful uniformity, deeply associated with intellectual and vital forces. It seems indeed a sort of electric telegraph between the most remote regions of the body. Simple concussion may, like the lightning flash, annihilate in a moment all sensation, and even life itself.

The *duplicity* of the hemispheres may, I believe, be the source of many eccentric mental phenomena, if they be in opposite conditions of development or power. Tiedeman's patient seems to have reasoned with one hemisphere on the imbecility of the other. Tucker also, in

his "Light of Nature," believes in two wills, constantly opposing and controlling each other ; and we may believe that such a contest may induce that unhappy phase of mind we term indecision or fickleness.

These are the weathercocks of society, resolving now on one thing and then on another, and constantly lisping forth in tremulous accents, "What ought I to do?" and perchance doing nothing. In its deeper moral phase it may remind us of the Kitchi and the Matchi Manitou of the Red Indian, the good and the bad Spirit contesting for the possession of man's heart. Seriously—may it not elucidate the paradoxical traits of Swift, Byron, Burns, who were ever scribbling virtue while they were acting vice ; and it may even throw light over the rationale of insanity, that so bewilders the theologian, the lawyer, and the minister of State.

In our study of intellect, however, it is expected that we look more deeply among the tissues of the brain, especially those which lie within its recesses at the base of the skull—delicate membranes, plexuses, commissures, tubercles, glands, and sinuses of blood and cords of neurine crossing and recrossing, forming the great connecting commissures of the brain, the cerebellum, and the spinal marrow, thus constituting within a ring fence the roots or termination of the whole nervous system. It is within this structure, I believe, that lies the grand secret, yet undiscovered, of impression, sensation, perception, ideation, reflection, volition, that combination of faculties which we conventionally term mind. It is here that may commence the study of the source of intellect in the senses, which may perchance solve the query of Reid—"What is a visible figure ; is it a sensation or idea ; if an idea, from what?" and the notion of Descartes and Locke, that the qualities of bodies are mere sensations of mind. In three of the senses—sight, hearing, smell—these qualities may act from a distance ; the flashing of light, the undulation of air, the wafting of an odour. In the other two there must be contact of a body with the fibrila of a wave.

In illustration of these propositions, I will endeavour to trace the genesis or evolution of an idea in harmony with the philosophy of Locke and the principles of Reid—"Nihil in intellectu quod non prius in sensu," selecting the physiology of the most precious and most beautiful of the senses.

The sense of sight is not in the *organ* of vision. The eye itself is a mere optic instrument, of most exquisite construction, and fitted with lenses most delicate and true. Rays of light from an object flash through the *cornea*, and being refracted from the *crystalline*, impinge, upside down, on the *retina*. But vision is not yet. This impression is simple sensation. From the meshes of the retina springs the great optic nerve that takes its course to the central lobules of the brain, and there intermingles with its *thalamus* and tubercles ; and here, we may believe, it imparts perception. Now, if this nerve be cut asunder, or paralysed, as in amaurosis, the vision is intersected or lost. The image is still on the retina, but the brain receives no impression. If, however, the optic track be perfect, the image will be transmitted in its normal position to the inosculation of the nerve with the brain ;

and there, we may believe, will be perfected the conversion of an impression into an idea—light, colour, form. This is almost a demonstration; and yet the phrenologist will still argue that “the perceptive organs are in close approximation to the instruments of sense to which they relate.” And what becomes of this idea? it is too precious to be lost. From the intimate and direct communication of the optic tubercles and thalamus both with the cerebellum and the spinal cord, but chiefly with the hemispheric ganglion, we may infer that it is conveyed to the nerve-cells; thus intellect becomes perfect, its two great points being ideation and reflection.

In the cells of the ganglion they may lie in abeyance, to be revived by association or recollected by the will, thus constituting the faculty of memory—poetically, “the mind’s eye”—that may see an object in dream or reverie as clear and true as in its waking contemplation of reality.

The higher the force and freshness of this revival, the higher (*cæteris paribus*) will be the grade of intellect constituting the element of learning, and even supplying genius itself with fuel for the fire of its imagination. Fancy, in its most fascinating and eccentric flights, is indeed memory run wild. “Sense sendeth over to the imagination before reason have judged.”—*Bacon*. Shakspeare did not create new worlds; it was his mighty genius that arranged and arrayed in fresh beauty and wisdom the precious store of ideas housed within his brain. If this may be a truth, the selection of one absorbing idea from its cell may illustrate “the ruling passion strong in death,” and the abstraction of Pliny amid the ashes of Vesuvius, of Parmegiano and Protogenes, during the sieges of Rome and Rhodes; and of Newton during the composition of the *Principia*. I have thus offered one illustration of simple intelligence. Take an example of the more complex kind,—reflex action. A fly settles on the cheek and irritates the skin; the afferent or sensory nerve, by a flash from the spinal cord, informs the brain, and that instantly wills its removal (volition), and the efferent or motor nerve directs the muscles of the arm to brush the insect away. There is not always, however, a good telegraphic understanding between the filaments of a nerve. A woman has dropped her baby and a gentleman his snuff-box, from mere inattention to the object they were holding. On the contrary, pain may be excited by our mere thinking on it, and “by seeming gay we grow to what we seem.”

This intercommunication between sense and organ is of the deepest import regarding mental science. The most simple and remote irritation may, without even consciousness or sensation, induce intense mental derangement. A boy was struck with the most furious mania from a tiny splinter of glass broken into his foot, inducing scarcely any *local* pain. The paroxysm, however, instantly subsided on the removal of the glass, and the mind became perfectly calm and quiescent. The sensations of thrill, throb, pang, flush, are common illustrations of this sympathy, involving, indeed, the secret of Emotion—the *feeling of thought in the flesh*. Even the most tender sentiment may be thus *displayed*. The poet was physiologically true who wrote,

"You might almost believe her body thought;" in alluding to the blush mantling over the cheek and neck and bosom of beauty. When sentiment is heightened into emotion it involves the most extensive organic action; and when it is intensified into passion, the sympathy of the whole nervous system. Thus true love, in its first degree, is a pure sentiment; when the sensitive is fairly blended with the animal, it becomes emotion; when the animal is predominant, it is darkened into passion. We may be often conscious of the electric current of this emotional sympathy, as it flashes down the neck along the nervous cords that inosculate with the meshes of the great sympathetic in their course to the lung, the heart, and the stomach, inducing panting and oppression, the lung almost forgetting to breathe, the heart becoming feeble or tremulous. A *broken* heart, indeed, is not a mere poetic fiction. It is the acute *reaction*, however, on the brain, of the heart and lung, and especially the chronic influence of the stomach, that are of high interest in this discussion, deranging the intellect in the various degrees of depression and excitement, melancholy illusion, frenzy. It was dyspepsia—for which Melanchthon urged him to consult the doctors at Erfurth—that incessantly haunted Luther with the phantom of the devil at his writing-desk; and I may remind you of the intense spectral illusion of Nicolai, the bookseller of Berlin, after every meal, until digestion was complete. I might cite also the cases of many of our own patients, who were exalted "from grave to gay" in a moment, as the ingesta passed the *pylorus*. You may perchance remember the story of Voltaire. He had agreed with a friend that on the morrow morning they should die together by their own hands. At day-break, however, the friend received a billet from the cynic, stating that he had changed his mind; his lavement had acted beautifully, and his friend would oblige him by taking the leap in the dark by himself. The stomach may, indeed, decide many a mighty issue, even eclipse the glory of a nation. It was the remark of Lord Chesterfield, that many a battle had been lost because the general was labouring under a fit of dyspepsia. Even in the banquet-room we may often smile at the sympathy of stomach with the brain action. A goblet or two of champagne will soon sparkle up the wit; but one glass more, and there lies his lordship. And who does not know how deeply the organ of benevolence dips into the money-purse, when the organ of alimentiveness has been well stuffed out at a charity dinner?

The deeper pathology of nerve tissue I may not now discuss; anæmia; hyperæmia, poison-blood; and wasting and wearing of brain, etc., or I might illustrate many more of the deeper shadows of genius: the illusions of Tasso, Lee, Blake; the frenzy of Burton, Collins, Cowper, Miller, etc. My object, however, has been to submit these crude illustrations of the organism of the encephalon, with which mental phenomena may seem to be associated, as a mere stepping-stone to the future study of intellect.

The thanks of the meeting were given to the author of the paper.

Mr. ATKINSON, to whose book Mr. Dendy had pointedly alluded,

said that if the author of the paper had carefully read the statement in his book referred to, he would have found its meaning sufficiently explained.* He disagreed from the opinion that impressions or sensations pass into the brain along any nerve at all, but are transmitted direct by an animal magnetic law; but he refrained from entering into a general discussion of the subject, though invited to do so, as his novel views of nervous action require careful illustration to be appreciated.

Mr. BROOKES observed that the several propositions for discussions suggested in the paper, were far too vague, and that the paper treated the topics advanced in a mode that was not scientific, and he felt at a loss to conceive what the propositions were which the author of the paper wished to establish.

Mr. G. HARRIS said, that he thought the thanks of the society were due to the author of the paper; and he (Mr. Harris) must take that opportunity of expressing his satisfaction that mental philosophy had at length been brought directly before the society, considering, as he did, this as the highest branch of anthropology, as it was, indeed, the first of all the sciences. Anthropology might do more for this science than could be effected by any other branch of knowledge; and perhaps anthropology had no higher aim than this. As yet, however, mental science had not assumed that rank in the department of anthropology which its importance warranted. Anthropology revealed to us the union between, and the reciprocal influence of, mind and matter. He (Mr. Harris), however, regretted that the paper just read did not go deeper and more fully into the subject of mental philosophy. The author descended speedily from mind to matter,—from the consideration of the faculties he diverged to that of the nerves, and from the soul he dropped down into the stomach. He (Mr. Harris) hoped much that the subject of mental philosophy would be followed up by other papers. The connexion between mind and matter might be illustrated by facts which the Anthropological Society had contributed largely to supply. Mental science, moreover, was not only the most important, but it was the most practical and the most useful branch of anthropology. It embraced the important and practical topic of memory; as also those of logic, language, and the laws of thought. Anthropology might also render mental science practical, as a pursuit. Leaving it to others to follow the author of the paper through the various points which he had touched upon, he (Mr. Harris) should content himself with merely urging upon the society increased attention to topics connected with mental philosophy.

Dr. DONOVAN did not think it judicious to drag phrenology into the subject, for mental science should be considered apart from its phrenological questions and applications. He considered the study of the mind to be the commencement—the alphabet, in short—of anthropology, but the author had said nothing about it in his paper. From its title, it might have been assumed that the author would have attempted to analyse the intellect, but it was not analysed at all. He entered into some

* Letters to Harriet Martineau, p. 73, 84, 107.

examination of the brain, but not of the intellect. Dr. Spurzheim had been accused of fanciful speculations, but no accusation could be more unjust. Any fancies he might have had were distinct from his science; for in his investigations he was led by inductive reasoning step by step, following closely his great leader, Dr. Gall. He considered the assertions and reasonings in the paper to be a confused mixture about the brain and intellectual faculties, but he hoped something would come out of it, and that it would lead to a more complete and satisfactory examination of the science of mind, which was the true object of anthropology, for it was the real science of man. He hoped the Society would investigate the subject thoroughly. They would have the aid of various writers in pursuing that object, and he trusted that the result of their labours would be that man would really come to know something about himself.

The Rev. DUNBAR HEATH thought the paper had not received due appreciation. The subject of it was not the anatomy of the intellect, as Dr. Donovan had supposed, for that would involve the assumption that the intellect has an anatomy. The subject was not the anatomy of the intellect, but intellectual physiology, meaning thereby the knowledge of that portion of the human body connected with intellectual phenomena. There might thus be an anatomy of intellectual physiology, though not of the intellect. In point of fact, however, was there a physiology, or a building up of original matter and forces, which, where united, in certain forms, produced a certain kind of action called intellectual? If there be a physiology at all, there must be an anatomy of it. The author of the paper said that emotion is a feeling of thought apparently in the flesh, and this could be connected with physiology. A blush, for instance, is something of the mental part of us showing itself in the flesh. Then the author of the paper spoke of an idea lying in abeyance for a number of years in the cerebral cells. That was an awful theory. It supposed the possibility of memory, connected with some portion of the cerebral mass, being in abeyance for seventy years, and that when we remember the idea, that portion of the brain which had been in abeyance is recalled into action. That, again, involved the question of who are the ones who have remembrance of things so long ago? The paper went right into the middle of that subject, but not in a perfect manner; it had the great merit of bringing the question forcibly before them. It was a striking statement, that the portions of the brain connected with the organs of sensation, instead of being close to those organs, were situated near the organs of motion at the base of the brain. In reference to that portion of the paper, Mr. Heath alluded to a controversy in the *Pall Mall Gazette* between Professor Huxley and some anonymous writer, respecting the views of modern physiologists as to the action of the brain in man and in the lower animals; it having been asserted that, according to modern physiologists, the great mass of the brain is alike in all, but that there is in man a cerebral distinction separating the organs into a brain above the brain, but Professor Huxley had denied that to be the received opinion. There was some similarity between that opinion and the views the author of the paper had set

before them. He commenced about the soul, a pre-existing controlling mind governing matter, and asserted that there is a soul and a power existing without phenomena ; that there is, in short, a spirit existing without bodily action. There was, however, no evidence of such existence, and all that could be said of it was that it may be.

Dr. KING thought there was one point which had been left out of consideration by the author of the paper, which was of great importance, viz., that it is the quality and not the quantity of the brain which determines the amount of the intellectual faculties. He alluded to the skulls of several distinguished individuals—to those of Cuvier and Napoleon Bonaparte in particular, the latter of whom was supposed to have the smallest skull and brain known. [Several members having contradicted that opinion, the cast of the skull of Napoleon was produced from the museum to show that the frontal development of the head was large.] There were several similar instances with regard to the development of the muscles ; for many remarkably strong men had comparatively small muscular development, it being the quality and not the quantity that produced muscular power. This, he said, was often exemplified in pugilists. He mentioned also the fact that men who have lost both testicles frequently possess great muscular power of action.

Dr. HUNT said he was not then prepared to follow Dr. King into the consideration of the respective values of size and quality as influencing intellectual and muscular power ; but with regard to the paper, he regretted to say that it had disappointed him. It was true the author had to deal with a difficult subject, and it was very desirable that that subject should be brought before them, as it was one which had not hitherto received sufficient attention from the society. The first proposition on the paper was one which he thought they must all agree to ; but he was startled when the author proceeded to state that it must be admitted that matter was originally endowed with action,—that it possessed some special endowment. He could not admit that proposition. It was mere assumption, and must be regarded as such. He should not attempt to follow the author of the paper into his other propositions, which were based on an assumption which he (Dr. Hunt) could not admit. He considered the treatment of the subject hardly worthy of its great importance ; but the paper was very suggestive, and he hoped it would be the means of stimulating others to bring forward something more satisfactory.

Mr. A. L. LEWIS observed, that the fact brought forward by the author of the paper, that the optic nerve is conveyed to the base of the skull, tended to confirm the idea that the seat of the vital principle is at the base of the brain, and that the development of it belongs to the upper portions of the cerebral mass. The fact that it is possible to lose one portion of the brain without loss of the intellectual faculties, showed that the shape of the skull was no indication of mental capacity, and that phrenology must be at fault.

Dr. DOWN, referring to the portion of the paper on which the memory was stated to have been locked up for years in the cells of the brain, said he supposed that, according to Mr. Dendy's theory, the

brain in the course of years undergoes some change, but that a certain portion of it remains for a long period. He adduced an instance of a youth who possessed remarkable power in remembering anything addressed to the optic nerve, whose peculiarly distinct recollection of visible objects ten years afterwards he thought tended to confirm the views of the author of the paper. With regard to Dr. King's opinion, that the quality of the brain was of more importance than the quantity, he mentioned, in confirmation of that opinion, that he had dissected the brains of two boys, one of which was the largest on record, and the other weighed only nine ounces, yet the boy with the smallest brain was more quick and shrewd than the other. Phrenologists, he therefore conceived, committed a mistake in looking to the quantity of the brain and not to its quality.

Dr. DONOVAN denied that phrenologists disregarded the quality of the brain, and attended only to the quantity. It has ever been their practice to consider the quality of the brain especially. They have thrown more light upon temperaments than any other class of investigators; and if there be one question more than another to which they have directed their attention, it is that of temperament. There was another point on which he wished to make a remark. It was a general error, that men who have received injury of the brain often retain the full use of their faculties, and a remarkable instance of the kind was stated in the paper. But he denied the correctness of all such statements. The merchant alluded to might have retained a certain degree of consciousness, but he would be unable to transact his usual business, and did not make the attempt; and it might as well be said that a man with a broken leg was able to walk, because he had all his muscles. He denied, indeed, that any sick man retained the full use of his faculties.

Dr. DOWN observed that phrenologists ought to state the respective values of the quantity and quality of the brain in the respective organs. He had formerly been a believer in phrenology, and he commenced a work which he hoped would have established it on a firmer basis, but he had, in the course of his inquiries, been induced to take entirely opposite views; and he contended that no measurement of the skull could denote the quality of the brain.

Mr. H. BROOKES said, the state of the physiology of the brain twenty-five years ago was admitted to be a disgrace and a shame to the medical profession, and it was so still. Gall and Spurzheim made certain propositions, and they challenged the examination of them; yet now it was stated that there is no proof that the brain is the organ of the mind, or that it has anything to do with it. He alluded, as an instance of the avowed state of ignorance of this subject, to a recent case in a court of law. In order to prove the incompetency of a testator to make a will, evidence was adduced of the diseased state of his brain, and of the thickening of the skull of the deceased; but the judges said there was no evidence to satisfy them that the state of the brain had anything to do with the state of the mind; and that evidence of a diseased skull did not prove mental insanity. Such a state of ignorance was a disgrace to anatomists,

who went on year after year dissecting the brain without doing anything. It was most desirable to ascertain the phenomena of mind, and whether they had any relation to, or were dependent on, the state of the brain. The first question to be determined was, is the brain at all connected with the manifestations of mind? and if so, then would come the question, what parts of the brain are brought into action in different states of mental excitement? It was most important that the subject should be investigated, and that phrenologists should be compelled to produce the proofs of the positions they had arrived at. They should prove that mental phenomena are dependent on the brain; and that special manifestations of mind are connected with separate and distinct parts of the brain.

Mr. McGRIGOR ALLAN made some remarks on that part of the paper in which the author stated that the heads of criminals he had examined, did not indicate the possession of the propensities which led to their crimes; and also, that the skulls of young girls were generally smooth and round, without any marked phrenological developments. If that were so, phrenologists would find it difficult to account for the number of infanticides which were committed by young women. In his opinion, differences in character are dependent on differences in the convolutions of the brain; and he adduced three instances, from his own observation, of great differences in the convolutions,—one of the cases being that of the skull of an orang-utan. He thought, therefore, that the shape of the skull was not nearly so much an indication of intellect as the quality of the brain. The author of the paper inclined to the opinion that mind is the result of material organisation, and he was disposed to take the same view; for how could mind be said to govern matter, when it is known that the drinking of a glass of wine too much will turn a wise man into a fool?

Mr. BENSON conceived that, in the discussion on the paper, many of the speakers had argued from the wrong end. He considered that if the phenomena of the mind constituted a science, the opinions of those who had had the opportunity of making the greatest number of inductions were well deserving consideration; and the assertions of phrenologists of the results of their experience were consequently of great importance, and were sufficient to place craniology in a favourable position as a science. It was at least equally so as the science of medicine; for in nine cases out of ten medical men could not tell what effect certain medicines would have on certain constitutions. The statement of Dr. King respecting eunuchs showed that the brain is the source of nervous power, and the muscular action would not have occurred had the organ of amativeness been destroyed. He contended that craniology is an inductive science, which ought to be more extensively cultivated.

Dr. DONOVAN recalled attention to the subject immediately under discussion, which, he said, was not a question of skulls and brains, but the mental system of man, and that it should be the object of the society to ascertain what man is, mentally considered.

Dr. HUNT said it was the duty of anthropologists to study the

functions of the brain. The observation of facts was an important point in the science of man ; and he greatly approved of Dr. Down's method of observing facts, and taking into consideration the temperament in connexion with the size and quality of the brain, as the true inductive system on which anthropology should be studied.

Mr. DENDY replied to many of the observations on his paper. With regard to Mr. Atkinson, he said that gentleman had contented himself by referring to his book for an explanation of his views, and he had left the society ignorant of his *rationale*. He had read the book, and he still thought the theory there propounded was wrong ; and he (Mr. Dendy) again adduced the passage of the optic nerve from the eye to the base of the skull, remote from the frontal lobes, the seat of the perceptive organs of the craniologist. With respect to Mr. Heath's observation on the improbability of ideas being stored for many years in the connexion with the substance of the brain, he said, that matter was indivisible, the ultimate atoms being never arrived at ; and microphotography had shown that things completely invisible to the naked eye, were yet impressed in all their details. To the objection that had been raised by Dr. Hunt to the term of special endowment, he said he could offer no explanation of the term further than by saying, that in anything which acts there must be power of action, and that inherent power which was exerted by matter he called the special endowment of that matter. He left out of consideration altogether the sources of that endowment, for the discussion of primary causes was out of place in that society. Dr. Donovan had expressed doubt respecting the case of the merchant and others who retained their faculties after mutilation of the cerebrum, the men retaining all their faculties,—intellect, of course, being weak and feeble ; but he assured him that the fact was so. With respect to craniology, he differed on that point entirely from Drs. Gall and Spurzheim, and he considered it to be a complete fallacy unworthy of the science of the present day. He thanked the society for the attention paid to his paper, though he was rather disappointed that the speakers had not hit him harder, his object being the full elucidation of truth. Some of them had misinterpreted his meaning ; for he considered the physiology of the intellect as separate from the mystery of psychology.

The meeting was then adjourned.

DECEMBER 17TH, 1867.

DR. SEEMANN, V.P., IN THE CHAIR.

THE minutes of the previous meeting were read and confirmed.

R. B. Porter, Esq., C.E., of Lincoln, was elected a Fellow.

The following presents were announced as having been received, and thanks were given to the donors :—